

WANPIPE™

Multi-protocol WANPIPE™ Driver

For

OpenBSD

Wanpipe Version: 1.4.0

INSTALLATION GUIDE

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INTRODUCTION

The latest release of Sangoma WANPIPE driver for OpenBSD OS contains new Sangoma drivers for S508/FT1 ISA and S514x PCI (S5141 1 CPU, S5142 2 CPUs, S5143 FT1, S5144 T1/E1, S5145 56K, S5148 ADSL) cards. Protocols currently supported are Cisco HDLC, Frame Relay and Point-to-Point. Please note that this version contain number of changes to the card configuration process and debuggers.

History

Version	Description
1.3.9b	<ul style="list-style-type: none">• Initial version.
1.4.0b	<ul style="list-style-type: none">• Add supporting Sangoma ADSL card.

Conventions used in this manual:

Command line syntax conventions used are as follows:

- Command portion of the command line represented as normal text should be entered literally (exactly as printed)
- {argument} portion of the command line enclosed in curly braces represents variable name and should be submitted by the actual object name.
- [option] portion of the command line enclosed in square brackets is optional and can be omitted.

INSTALLING WANPIPE DRIVER PACKAGE

Obtaining The Wanpipe Software

Sangoma WANPIPE Driver can be downloaded from the Sangoma ftp site ([ftp.sangoma.com/OpenBSD/current_wanpipe](ftp://ftp.sangoma.com/OpenBSD/current_wanpipe)).

Note: wanpipe-obsd-1.3.9 package supports up to OpenBSD-2.x/3.x release.

It is recommended that a WANPIPE Driver package be installed on an OpenBSD kernel that has no prior installation of WANPIPE Drivers unless upgrading from an earlier version.

Installing WANPIPE package

- You can download package from Sangoma ftp site and then install WANPIPE package or you can install WANPIPE package from Sangoma ftp site.
- To install WANPIPE package previously downloaded from Sangoma ftp site, run follow command from directory where was WANPIPE package was copied:
`pkg_add wanpipe-obsd-X.Y.Z.tgz`
- To install WANPIPE package directly from Sangoma ftp site, run follow command:

```
pkg_add -f ftp://ftp.sangoma.com/OpenBSD/current_wanpipe/wanpipe-obsd-X.Y.Z.tgz
```

- `pkg_add` utility will execute the follow steps:
 1. Download the WANPIPE package (if you installing from Sangoma ftp site).
 2. Unpack the WANPIPE package in `/usr/local/wanpipe` directory.
 3. Run *Setup* script (see description further).

Removing WANPIPE package

- To remove the Sangoma WANPIPE package from the system, run the following command:

```
`pkg_delete wanpipe` (for WANPIPE package)
```

```
`pkg_delete wanpipe_custom` (for WANPIPE custom package)
```

Displaying package info

- To display Sangoma package from the system, run the following command:

```
`pkg_info wanpipe` (for WANPIPE package)
```

```
`pkg_info wanpipe_custom` (for WANPIPE custom package)
```

- For example:

Information for wanpipe:

Comment:

Sangoma WANPIPE Device Driver for OpenBSD (version 1.4.0b).

Description:

This package contains the latest Sangoma drivers for both S508/FT1 ISA card and S514x PCI (S5141 1 CPU, S5142 2 CPUs, S5143 FT1, S5144 T1/E1, S5145 56K, S5148 ADSL) cards for OpenBSD OS.

The current version wanpipe-1.4.0b supports all three protocols (Cisco HDLC, Frame Relay and Point-to-Point).

Release date:

12 September 2002

Package Components

WANPIPE Driver package includes the following components:

Description	Original location (/usr/local/wanpipe/)	Destination
Driver installation script	Setup	None
Driver configuration script	scripts/wancfg	/usr/sbin/wancfg
Driver FT1 configuration script	scripts/wanpipe_cfgft1	/usr/sbin/wanpipe_cfgft1
Driver WANROUTER scripts	scripts/wanrouter	/usr/sbin/wanrouter
Driver configuration libraries	Lib/*	/etc/wanpipe/lib/*
Driver sample configuration files	samples/*	/etc/wanpipe/samples/*
Firmware files for WANPIPE cards	firmware/*	/etc/wanpipe/firmware/*
Driver source files	wanpipe/*	None
	wanrouter/*	None
	sdladv/*	None
Driver header files	include/*	/usr/include/net/*

WANPIPE configuration utility	wantools/wanconfig	/usr/sbin/wanconfig
WANPIPE diagnostic utilities		
Frame Relay Monitor	wantools/fpipemon	/usr/sbin/fpipemon
Cisco HDLC Monitor	wantools/cpipemon	/usr/sbin/cpipemon
Point-to-Point Monitor	wantools/ppipemon	/usr/sbin/ppipemon
Adapter's Memory Viewer	wantools/sdladump	/usr/sbin/sdladump
API sample programs	wantools/api	

WANPIPE Driver Setup

- All WANPIPE scripts must be run under bash (at least version 2.03) shell (I suppose that bash shell locate in default directory /usr/local/bin directory).
- Make sure that you have a complete kernel source in your /usr/src/sys directory. A kernel source can be downloaded from ftp.openbsd.org.
- The *Setup* script performs the following steps:
 1. Verify distribution integrity and fix file permissions.
 2. Copy necessary driver's files for corresponding directories (see table above).
 3. Create/install configuration files.
 4. Install start-up script on boot (optional).
 5. Compile WANPIPE driver modules and utilities.
 6. Install WANPIPE driver modules and utilities.
 7. Create the custom WANPIPE package.

Configure OpenBSD kernel

- The WANPIPE driver compiled as module. If you didn't select option to start *wanrouter* on boot, you will need to set *securelevel* parameter to -1 in /etc/rc.securelevel file in order to load the driver module later.

- Add next lines to /usr/src/sys/conf/files:

```
# Sangoma Technologies Corp. network adapter
device sdla: ifnet
file dev/ic/sdla_dev.c      sdla
file dev/ic/sdladrv.c
```

- If you install S508 ISA card, you will need to add next lines to /usr/src/sys/dev/isa/files.isa file:

```
# Sangoma Technologies Corp. S508 ISA Card
```

```
attach sdla at isa with sdla_isa
file dev/isa/sdla_isa.c sdla_isa
```

- If you install S514 PCI card, you will need to add next lines to /usr/src/sys/dev/pci/files.pci file:

```
# Sangoma.Com S514 PCI Card
attach sdla at pci with sdla_pci
file dev/pci/sdla_pci.c sdla_pci
```

- Edit kernel configuration file which sits in /usr/src/sys/arch/i386/conf. For each S508 ISA card you are going to use add the following configuration line:

```
sdla0 at isa? port 0x360 iomem 0xD0000 irq3
```

(For unit 1 it should be device sdla1... of course). Change the entry resources as required. See notes at the end of this document for the list of possible I/O port, IRQ and shared memory values.

For each S514 PCI card you are going to use add the following configuration line:

```
sdla* at pci? dev ? function ?
```

- Build a new kernel using this configuration. Assuming your configuration file is called MYKERNEL do the following:

```
cd /usr/src/sys/arch/i386/conf
config MYKERNEL
cd ../compile/MYKERNEL
make depend
make
cp /bsd/bsd.last <-- save a copy of current kernel (OpenBSD 2.x only)
cp bsd / <-- copy new kernel to root directory (OpenBSD 2.x only)
make install <-- install new kernel (OpenBSD-3.x only)
reboot
```

And there you have it!

On startup the kernel will probe the configuration boards and will tell you whether it found it or not. If you missed this message on the boot time you can always view them with `dmesg` command or by taking a look at /var/log/messages files.

If a board is not found by the driver/kernel but it's actually plugged into machine then the most likely problem is that the I/O port address is incorrect. Make sure that the settings in your kernel configuration file correspond to the jumper settings on the board (see notes).

Device driver configuration variables

- Changing one of the following variables requires to re-compile WANPIPE modules/utilities.
- Device driver configuration variable (all variables located in wanpipe_config.h file):
 - CONFIG_WANPIPE_ROUTERS* - Defined maximum number of running routers.
 - NBPFILTER* - If this variable is set to 1, Berkley Packet Filtering supported. Define this variable when you are going to use wanpipe device as API.
 - ALTQ* – Define this variable to enable supporting Alternate Queuing (ALTQ) by this driver.

Create Sangoma WANPIPE Custom distribution package

- Sangoma WANPIPE package allows you to create custom distribution package with all pre-compiled WANPIPE modules/utilities. This feature allows you to install the Sangoma WANPIPE driver to production system without copying all WANPIPE source (only if both system has the same OpenBSD kernel).
- Before creating WANPIPE custom distribution package, compile all WANPIPE modules and utilities.
- To create WANPIPE custom distribution package, execute follow command from /usr/local/wanpipe directory:

`./Setup wanpipe custom <WANPIPE custom distribution package name>`

- After running previous command, the file <WANPIPE custom distribution package name>.tgz can be found under /usr/local/wanpipe directory.
- To install WANPIPE custom distribution package, follow the same steps as to install original Sangoma WANPIPE package (see above).